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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/160,454	09/24/98	BAWENDI	M

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BOSTON MA 02110-2804

HM22/0731

EXAMINER

PHAM, M

ART UNIT	PAPER NUMBER
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1641

DATE MAILED:

16
07/31/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/160,454

Applicant(s)

BAWENDI ET AL.

Examiner

Minh-Quan K. Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2000.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) 46-48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-45, 49-52, 54, 55, 60 and 61 is/are rejected.
- 7) ☒ Claim(s) 7, 30, 37, 38, 46-49 and 53 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☐ received.
2. ☐ received in Application No. (Series Code / Serial Number) _____.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 18) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The declaration filed on July 1, 2000, under 37 CFR 1.131 has been considered but is ineffective to overcome the Weiss et al. (US 5,990,479) reference.

The evidence submitted is insufficient to establish diligence from a date prior to the date of reduction to practice of the Weiss et al. reference to either a constructive reduction to practice or an actual reduction to practice. Exhibit B is not commensurate with the scope of the invention. Exhibit B shows method of preparation of luminescent nanocrystals (quantum dots), but the instant invention is a compound linked to a quantum dot.

The Weiss et al. reference is a U.S. patent that claims the rejected invention. An affidavit or declaration is inappropriate under 37 CFR 1.131(a) when the patent is claiming the same patentable invention, see MPEP § 2306. The patent can only be overcome by establishing priority of invention through interference proceedings. See MPEP Chapter 2300 for information on initiating interference proceedings.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground

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provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-45 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-53 and 56-57 of copending Application No. 09/397,436. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both claim a semiconductor nanocrystal (quantum dot) linked to a compound. The copending application differs from the instant application because a member of a binding pair is linked to a quantum dot rather than a compound linked to a quantum dot as in the instant application. However since the compound is broader and comprises the member of a binding pair, it would have been obvious to one of ordinary skill in the art to link the compound with the quantum dot.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Objections

Claim 7 objected to because of the following informality: the word "association" is misspelled in the claim. The objection is maintained because the amendment filed on July 1, 2000, did not correct the misspelling. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is vague and indefinite because it is not clear how the compound and the nanocrystal is "associated." The rejection is maintained.

Applicants argued that the term "associated" means a chemical interaction between the compound and the semiconductor nanocrystal, but failed to show support for this assertion in the specification. To obviate the rejection, examiner suggest replacing "associated with" with - - bound to - - or - - linked to - -.

Other rejections of claims 2, 11, 28, and 31 under 35 U.S.C. 112 are withdrawn in light of amendments presented in Paper No. 14, filed July 1, 2000.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-27, 29, 31-32, 34-36, and 39, 41-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Weiss et al. (US Pat. 5,990,479). The rejection is maintained because the

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declaration filed on July 1, 2000, under 37 CFR 1.131 is ineffective to overcome the Weiss et al. reference (see above).

NEW REJECTION

Claims 49-52, 54-55, and 60-61 are rejected under 35 U.S.C. 102(e) as being anticipated by Weiss et al. (US Pat. 5,990,479).

See previous Office action for the disclosure of Weiss et al.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 28 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al. (US Pat. 5,990,479) in view of Matsumoto et al. (1996), *J. Phys. Chem.*, 100(32):13781-13785. The rejection is maintained because the declaration filed on July 1, 2000, under 37 CFR 1.131 is ineffective to overcome the Weiss et al. reference (see above).

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al. (US Pat. 5,990,479) in view of Dabbousi et al. (1997), *J. Phys. Chem. B*, 101:9463-9475. The rejection is maintained because the declaration filed on July 1, 2000, under 37 CFR 1.131 is ineffective to overcome the Weiss et al. reference (see above).

Allowable Subject Matter

Claims 30, 37-38, 53 and 46-49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Although the prior arts disclose a composition comprising a quantum dot linked to an affinity molecule for use in biological assays, they do not disclose that the ligand has the formula $H_zX((CH_2)_nCO_2H)_y$, where X is S, N, P, or O=P, $n \geq 6$, and z and y are selected to satisfy the valence requirements of X; or that the photoluminescence has quantum yields greater than 10% in water. Therefore, claims 30 and 37-38 would be allowable over the prior art.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hines et al. (1996), *Journal of Physical Chemistry*, 100:468-471; Norris et al. (1996), *Physical Review B*, 53(24):16347-16354; Norris et al. (1996), *Physical Review B*, 53(24):16338-16346, are cited to show quantum dots and their manufacturing techniques.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh-Quan K. Pham, Ph.D., whose telephone number is (703) 305-1444. The examiner can normally be reached on Monday to Friday, 8 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (703) 305-3399. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-4242 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Minh-Quan K. Pham, Ph.D.
July 24, 2000



CHRISTOPHER L. CHIN
PRIMARY EXAMINER
GROUP 1800 / 641